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10/758,097	01/16/2004	Hiroshi Funakubo	118365	4983

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EXAMINER	
MCDONALD, RODNEY GLENN	
ART UNIT	**PAPER NUMBER**
1753	

DATE MAILED: 03/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/758,097	FUNAKUBO, HIROSHI
	Examiner	Art Unit
	Rodney G. McDonald	1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 25 January 2006.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-27 is/are pending in the application.

4a) Of the above claim(s) 23-27 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-22 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyoshi (Japan 2001-064099) in view of Shiiki et al. (U.S. Pat. 4,576,876).

Regarding claim 1, Akiyoshi teach a method for fabricating a Fe-Si film. (See Abstract) A substrate is first prepared. (Machine translation 0067) The planes of the substrate can be oriented (100) or (111). (See Abstract; Machine translation 0065) A Fe-Si alloy based film is formed on the substrate epitaxially. (See Abstract)

Regarding claim 4, Akiyoshi teach utilizing RF magnetron sputtering. (Machine translation 0065)

Regarding claim 5, the substrate can be heated to 650 degrees C, which is within Applicant's claims. (See Abstract)

The differences between Akiyoshi and the present claims is that the crystal planes being oriented perpendicular to the main surface of the substrate is not discussed (Claim 1), the difference between the substrate and the Fe-Si based film being set to 16% or below is not discussed (Claim 2), the difference between the substrate and the Fe-Si based thin being set within –6% to 16% is not discussed (Claim 3), the film containing Fe crystal planes and Si crystal planes alternately stacked is not discussed (Claim 7).

Regarding the crystal planes being oriented perpendicular to the main surface of the substrate of claim 1, Shiiki et al. teach that underlying material for a film of Fe-Si alloy should contain crystals of a hexagonal system so that the c-axis of the material underneath the Fe-Si alloy layer extends at right angles to the surface of the material. (Column 2 lines 35-45; Column 3 lines 36-68)

The motivation for providing a material underlying the film of Fe-Si alloy to have crystals that extend at right angles to the surface f the material is that it allows improvement in anisotropy for magnetic layers deposited on the Fe-Si alloy film. (Column 3 lines 66-68)

Regarding the difference between the substrate and the Fe-Si based film being set to 16% or below of claim 2 and the difference between the substrate and the Fe-Si based thin being set within –6% to 16% of claim 3, since Akiyoshi teach depositing on an oriented substrate which is identical to Applicant's substrate and since the process

conditions are the same the film is believed to fall within Applicant's required ranges. (See Akiyoshi discussed above)

Regarding the film containing Fe crystal planes and Si crystal planes alternately stacked of claim 7, since Akiyoshi et al. teach depositing on an oriented substrate, which is identical to Applicant's substrate and since the process conditions of Akiyoshi et al. are the same as Applicant's the FeSi film deposited by Akiyoshi et al. is believed to produce alternately stacked Fe and Si crystal planes. (See Akiyoshi et al. discussed above)

The motivation for forming a film with Fe and Si alternately stacking in the film and controlling orientation of the Fe-Si film is that it allows production of a high quality β-$FeSi_2$ epitaxial layer. (See Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Akiyoshi by utilizing crystal planes oriented perpendicular to the main surface of the substrate as taught by Shiiki et al. and to have formed a film with Fe and Si alternately stacking in the film and controlling orientation in the Fe-Si film as taught by Akiyoshi because it allows for improvement in anisotropy for magnetic layers deposited on the Fe-Si alloy film and for production of a high quality β-$FeSi_2$ epitaxial layer.

Claims 6, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyoshi in view of Shiiki et al. as applied to claims 1-5 and 7 above, and further in view of Noguchi et al. (U.S. Pat. 5,211,761) and Lee et al. (U.S. Pat. 6,531,235).

The differences not yet discussed are the use of a substrate being made of (100) Y2O3-ZrO2 that is non-doped and the Fe-Si based thin film being epitaxially grown in two rotational symmetry is not discussed (Claim 10).

Regarding the use of a substrate being made of (100) Y_2O_3-ZrO_2 that is non doped and the Fe-Si based thin film being epitaxially grown in two rotational symmetry of claims 6, 9, 10, Noguchi et al. recognize that a substrate can be made of ceramics including Y_2O_3 and ZrO_2 for supporting a FeSi2 layer. (Noguchi et al. Column 4 lines 46-58; Column 3 lines 27-31) Lee et al. teach that a YSZ material for supporting a subsequent layer can be oriented in the (100) direction. (Lee et al. Column 5 lines 40-48) Since the film of Fe-Si is grown on a similar oriented material as Applicant's the film will have the two rotational symmetry.

The motivation for use of a substrate being made of non-doped (100) Y_2O_3-ZrO_2 and the Fe-Si based thin film being epitaxially grown in two rotational symmetry is that it allows for orienting the subsequent layer. (Lee et al. Column 5 lines 45-47)

Therefore it would have been obvious to use a substrate being made of (100) Y_2O_3-ZrO_2 and a Fe-Si based thin film being epitaxially grown in two rotational symmetry as taught by Noguchi et al. and Lee et al. because it allows for orienting the subsequent layer.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyoshi in view of Shiiki et al. as applied to claims 1-5 and 7 above, and further in view of Noguchi et al. (U.S. Pat. 5,211,761) and Yano et al. (U.S. Pat. 6,045,626).

The difference not yet discussed is the substrate being made of non-doped (111) Si substrate and the Fe-Si based thin film is orientated commensurate with the (110)/(101) plane thereof. (Claim 8)

Regarding claim 8, Yano et al. teach a substrate for epitaxial growth that is made of a non-doped (111) Si. (Column 8 lines 51-60)

Regarding the Fe-Si based thin film oriented commensurate with the (110)/(101) plane of Claim 8, since Yano et al. teach depositing on an oriented substrate which is identical to Applicant's substrate and since the process conditions of Akiyoshi et al. are the same as Applicant's the Fe-Si based thin film of Akiyoshi et al. is believed to be commensurate with the (110)/(101) of Applicant's claims.

The motivation for utilizing a particular orientation for the substrate is that it allows for providing a substrate suitable for electronic devices. (Column 3 lines 12-16)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a non doped (111) Si substrate as taught by Yano et al. because it allows for providing a substrate suitable for electronic devices.

Claims 9 and 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyoshi in view of Shiiki et al. as applied to claims 1-5 and 7 above, and further in view of Noguchi et al. (U.S. Pat. 5,211,761) and Schoop et al. (U.S. Pat. 6,537,689).

The differences not yet discussed are the substrate being made of non-doped (001) Al_2O_3 and the Fe-Si based thin film being epitaxially grown in three rotational symmetry is not discussed (Claim 11).

Noguchi et al. recognize that a substrate can be made of ceramics including Y_2O_3 and ZrO_2 for supporting a FeSi2 layer. (Noguchi et al. Column 4 lines 46-58; Column 3 lines 27-31) Schoop et al. teach a buffer material for a subsequent layer that is (001) oriented and can be Al2O3 which is non-doped. (Schoop et al. Column 3 lines 10-18; Column 3 lines 49-58) Since the film of Fe-Si is grown on a similar oriented material as Applicant's the film will have the two rotational symmetry.

The motivation for using a substrate being made of non-doped (001) Al_2O_3 and the Fe-Si based thin film being epitaxially grown in three rotational symmetry is that it allows for orienting the subsequent layer. (Schoop et al. Column 4 lines 44-45)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a substrate being made of non-doped (001) Al_2O_3 and the Fe-Si based thin film being epitaxially grown in three rotational symmetry as taught by Noguchi et al. and Schoop et al. because it allows for orienting the subsequent layer.

Claims 12-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiiki et al. (U.S. Pat. 4,576,876) in view of Akiyoshi et al. (Japan 2001-064099).

Regarding claim 12, Shiiki et al. teach a method for forming a FeSi film on a substrate. (Column 2 lines 35-45) Shiiki et al. teach forming a buffer layer on a substrate such that the crystal grains are oriented perpendicular to the surface of the substrate. (Column 3 lines 46-68) A film of Fe-Si is deposited on the buffer layer. (Column 2 lines 35-45)

The differences between Shiiki et al. and the present claims is that preparing the substrate is not discussed (Claim 12), the difference between the substrate and the Fe-Si based film being set to 16% or below is not discussed (Claim 13), the difference between the substrate and the Fe-Si based thin being set within –6% to 16% is not discussed (Claim 14), utilizing RF magnetron sputtering to form the Fe-Si film is not discussed (Claim 15), heating the buffer layer is not discussed (Claim 16), the film containing Fe crystal planes and Si crystal planes alternately stacked is not discussed (Claim 18).

Regarding preparing of the substrate of claim 12, Akiyoshi teach a method for fabricating a Fe-Si film. (See Abstract) A substrate is first prepared. (Machine translation 0067) The planes of the substrate can be oriented (100) or (111). (See Abstract; Machine translation 0065) A Fe-Si alloy based film is formed on the substrate epitaxially. (See Abstract).

Regarding the difference between the substrate and the Fe-Si based film being set to 16% or below of claim 13 and the difference between the substrate and the Fe-Si based thin being set within –6% to 16% of claim 14, since Akiyoshi teach depositing on an oriented substrate which is identical to Applicant's substrate and since the process conditions are the same the film is believed to fall within Applicant's required ranges. (See Akiyoshi discussed above)

Regarding utilizing RF magnetron sputtering to deposit the Fe-Si film of claim 15, Akiyoshi teach Rf magnetron sputtering to deposit the Fe-Si film. (See Machine Translation 0065)

Regarding the heating of the buffer layer of claim 16, Akiyoshi teach heating at 650 degrees C when depositing a Fe-Si film. (See Akiyoshi abstract)

Regarding the film containing Fe crystal planes and Si crystal planes alternately stacked of claim 18, since Akiyoshi et al. teach depositing on an oriented substrate, which is identical to Applicant's substrate and since the process conditions of Akiyoshi et al. are the same as Applicant's the FeSi film deposited by Akiyoshi et al. is believed to produce alternately stacked Fe and Si crystal planes. (See Akiyoshi et al. discussed above)

The motivation for preparing the substrate, controlling the orientation, utilizing RF magnetron sputtering to form the Fe-Si film, heating the buffer layer, alternately stacking the film containing Fe crystal planes and Si crystal planes is that it allows for production of a high quality β-$FeSi_2$ epitaxial layer. (See Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Shiiki et al. by preparing the substrate, by controlling the orientation, by utilizing RF magnetron sputtering to form the Fe-Si film, by heating the buffer layer, by alternately stacking the film containing Fe crystal planes and Si crystal planes as taught by Akiyoshi et al because it allows for production of a high quality β-$FeSi_2$ epitaxial layer.

Claims 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiiki et al. in view of Akiyoshi et al. as applied to claims 12-16 and 18 above, and further in view of Yano et al. (U.S. Pat. 6,045,626).

The differences not yet discussed are the composition and orientation of the buffer layer being non-doped (Claim 17) and the Fe-Si based thin film oriented commensurate with the 110/101 plane is not discussed (Claim 19).

Yano et al. teach a YSZ (yttria zirconia) buffer layer that is non-doped where the film has a (111) orientation. (Column 11 lines 38-47; Column 10 lines 52-64) Since Akiyoshi et al. teach depositing on an oriented substrate which is identical to Applicant's substrate and since the process conditions of Akiyoshi et al. are the same as Applicant's the Fe-Si based thin film of Akiyoshi et al. is believed to be commensurate with the (110)/(101) of Applicant's claims.

The motivation for utilizing a particular composition and orientation of the buffer layer is that it allows for providing a substrate suitable for electronic devices. (Column 3 lines 12-16)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a particular composition and orientation for the buffer layer as taught by Yano et al. because it allows for providing a substrate suitable for electronic devices.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiiki et al. in view of Akiyoshi et al. as applied to claims 12-16 and 18 above, and further in view of Lee et al. (U.S. Pat. 6,531,235).

The differences not yet discussed are the composition of the buffer layer being non-doped and orientation of the buffer layer and the Fe-Si based thin film oriented

commensurate with the (100) plane is not discussed (Claims 20) and where the Fe-Si film is epitaxially grown in two rotational symmetry is not discussed (claim 21)

Regarding claims 20, 21, Lee et al. teach that a YSZ non-doped buffer layer for supporting a subsequent layer can be oriented in the (100) direction. (Lee et al. Column 5 lines 40-48) Since the film of Fe-Si is grown on a similar oriented material as Applicant's the film will have the two rotational symmetry.

The motivation for use of a substrate being made of non-doped (100) Y_2O_3-ZrO_2 and the Fe-Si based thin film being epitaxially grown in two rotational symmetry is that it allows for orienting the subsequent layer. (Lee et al. Column 5 lines 45-47)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a layer being made of non-doped (100) Y_2O_3-ZrO_2 and the Fe-Si based thin film being epitaxially grown in two rotational symmetry as taught by Lee et al. because it allows for orienting the subsequent layer.

Claims 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiiki et al. in view of Akiyoshi et al. as applied to claims 12-16 and 18 above, and further in view of Schoop et al. (U.S. Pat. 6,537,689).

The differences not yet discussed are the composition of the buffer layer being non-doped and orientation of the buffer layer and the Fe-Si thin film epitaxially grown in three rotation symmetry. (Claim 22)

Regarding claim 22, Schoop et al. teach a buffer layer for a subsequent layer that is (001) oriented and can be non-doped Al2O3. (Schoop et al. Column 3 lines 10-18;

Column 3 lines 49-58) Since the film of Fe-Si is grown on a similar oriented material as Applicant's the film will have the two rotational symmetry.

The motivation for using a substrate being made of non-doped (001) Al_2O_3 and the Fe-Si based thin film being epitaxially grown in three rotational symmetry is that it allows for orienting the subsequent layer. (Schoop et al. Column 4 lines 44-45)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a substrate being made of (001) Al_2O_3 and the Fe-Si based thin film being epitaxially grown in three rotational symmetry as taught by Schoop et al. because it allows for orienting the subsequent layer.

Response to Arguments

Applicant's arguments filed 1-25-06 have been fully considered but they are not persuasive.

The 35 U.S.C. 112 rejections have been overcome by Applicant's amendment.

ARGUMENTS TO THE 35 U.S.C. 103 REJECTIONS:

A. Response to Applicant's arguments based on the rejection of Akiyoshi in view of Shiiki:

In response to the argument that Akiyoshi does not teach a substrate of which the crystal planes are oriented perpendicular to a main surface thereof made of the same kind of ion, it is argued that Shiiki the secondary reference recognize the necessity of providing the material underlying the Fe-Si film to have crystal planes oriented perpendicular to the main surface of the substrate. Such orientation improves the anisotropy of the magnetic layers. Whether it is an underlayer film or the substrate

one of ordinary skill in the art would recognize that the orientation beneath the Fe-Si layer must be such that it is perpendicular to the substrate to improve the anisotropy. This would be applied to either a substrate or film deposited on a substrate. Furthermore “preparing a substrate” might include depositing a film on the substrate such that the crystal planes are oriented perpendicular to the surface. (See Akiyoshi and Shiiki discussed above)

In response to the argument that it is not clear that Akiyoshi teach a substrate having (100) or (111) orientation, it is argued that Akiyoshi discuss Si with the (111) or (100) orientation. (See Akiyoshi discussed above)

In response to the argument that Akiyoshi does not teach a non-doped substrate, it is argued that the secondary references to Noguchi et al., Lee et al., Schoop et al. and Yano et al. al. teach non-doped substrates which could be used for epitaxial flm deposition.

In response to the argument that Shiiki fail to teach a substrate that has crystal planes oriented perpendicular to the main surface, it is argued that Shiiki the secondary reference recognize the necessity of providing the material underlying the Fe-Si film to have crystal planes oriented perpendicular to the main surface of the substrate. Such orientation improves the anisotropy of the magnetic layers. Whether it is an underlayer film or the substrate one of ordinary skill in the art would recognize that the orientation beneath the Fe-Si layer must be such that it is perpendicular to the substrate to improve the anisotropy. This would be applied to either a substrate or film deposited on a substrate. Furthermore “preparing a substrate” might include depositing a film on the

substrate such that the crystal planes are oriented perpendicular to the surface. (See Akiyoshi and Shiiki discussed above)

B. Response to Applicant's arguments based on the rejection of Akiyoshi in view of Shiiki and further in view of Noguchi and Lee:

In response to the argument that Noguchi and Lee do not teach preparing a substrate of which the crystal planes are oriented perpendicular to a main surface of the substrate, it is argued that the combination of Akiyoshi and Shiiki discussed above teach the required preparation of the substrate in which the crystal planes are oriented perpendicular to a main surface of the substrate. (See Akiyoshi and Shiiki discussed above)

C. Response to Applicant's arguments based on the rejection of Akiyoshi in view of Shiiki and further in view of Noguchi and Schoop:

In response to the argument that Noguchi and Schoop do not teach preparing a substrate of which the crystal planes are oriented perpendicular to a main surface of the substrate, it is argued that the combination of Akiyoshi and Shiiki discussed above teach the required preparation of the substrate in which the crystal planes are oriented perpendicular to a main surface of the substrate. (See Akiyoshi and Shiiki discussed above)

D. Response to Applicant's arguments based on Shiiki in view of Akiyoshi:

In response to the argument that Shiiki does not teach performing film forming operation on the main surface of the buffer layer to epitaxially grow a Fe-Si based thin

films thereon, it is argued that Akiyoshi teach performing a sputtering operation to epitaxially grow a film. (See Akiyoshi et al. discussed above)

In response to the argument that there is no motivation to combine Shiiki with Akiyoshi, it is argued that the motivation to combine Shiiki with Akiyoshi is that it allows for depositing a high quality β-$FeSi_2$ epitaxial layer. (See Shiiki and Akiyoshi discussed above)

E. Response to Applicant's arguments based on Shiiki in view of Akiyoshi and further in view of Yano:

In response to the argument that neither Shiiki nor Akiyoshi teach utilizing a non-doped Si buffer layer or another non-doped buffer layer, it is argued that the secondary references to Noguchi et al., Lee et al., Schoop et al. and Yano et al. al. teach non-doped buffer layers which could be used for epitaxial film deposition.

In response to the argument that Yano also does not teach performing film forming operation on the main surface of the buffer layer to epitaxially grow a Fe-Si based thin film, it is argued that Akiyoshi teach performing a sputtering operation to epitaxially grow a film. (See Akiyoshi et al. discussed above)

F. Response to Applicant's arguments based on Shiiki in view of Akiyoshi and further in view of Lee:

In response to the argument that neither Shiiki nor Akiyoshi teach utilizing a non-doped Si buffer layer or another non-doped buffer layer, it is argued that the secondary references to Noguchi et al., Lee et al., Schoop et al. and Yano et al. al. teach non-doped buffer layers which could be used for epitaxial film deposition.

In response to the argument that Lee also does not teach performing film forming operation on the main surface of the buffer layer to epitaxially grow a Fe-Si based thin film, it is argued that Akiyoshi teach performing a sputtering operation to epitaxially grow a film. (See Akiyoshi et al. discussed above)

G. Response to Applicant's arguments based on Shiiki in view of Akiyoshi and further in view of Schoop:

In response to the argument that neither Shiiki nor Akiyoshi teach utilizing a non-doped Si buffer layer or another non-doped buffer layer, it is argued that the secondary references to Noguchi et al., Lee et al., Schoop et al. and Yano et al. al. teach non-doped buffer layers which could be used for epitaxial film deposition.

In response to the argument that Schoop also does not teach performing film forming operation on the main surface of the buffer layer to epitaxially grow a Fe-Si based thin film, it is argued that Akiyoshi teach performing a sputtering operation to epitaxially grow a film. (See Akiyoshi et al. discussed above)

REJOINDER:

The restriction was made final in the previous office action and is believed to be proper. The claims will not be rejoined.

However should applicant pursue rejoinder the applicant is reminded that in order to be eligible for rejoinder, ***a claim to a nonelected invention must depend from or otherwise require all the limitations of an allowable claim. A withdrawn claim that does not require all the limitations of an allowable claim will not be rejoined.*** Furthermore, where restriction was required between a product and a process of

making and/or using the product, and the product invention was elected and subsequently found allowable, all claims to a nonelected process invention must depend from or otherwise require all the limitations of an allowable claim for the claims directed to that process invention to be eligible for rejoinder. See MPEP § 821.04(b). ***In order to retain the right to rejoinder, applicant is advised that the claims to the nonelected invention(s) should be amended during prosecution to require the limitations of the elected invention. Failure to do so may result in a loss of the right to rejoinder. See MPEP 821.04***

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M- Th with Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rodney G. McDonald
Primary Examiner
Art Unit 1753

RM
March 28, 2006